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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/678,083

10/06/2003

Shunpei Yamazaki

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EXAMINER

KEBEDE, BROOK

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/678,083	Applicant(s) YAMAZAKI ET AL.	
	Examiner Brook Kebede	Art Unit 2894	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18,20,21,24-32 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-18,20,21,24-32 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/5/09;3/9/09</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicants argue that “the effective filing date of the present application is October 6, 2003, and the effective filing date of the '050 application is March 15, 2004. In the present application, the provisional obviousness type double patenting rejection is the only rejection.. Therefore, the double patenting, rejection should be withdrawn and the present application should be permitted to issue as a patent without a terminal disclaimer...”

Applicant’s arguments have been fully considered and are persuasive. The previous rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the copending U.S. Application No. 10/787,120

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 10, 11, 13-18, 20, 21, 24-32 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13 and 15 – 24 of copending Application No. 10/787,120. Although the conflicting claims are not identical, they are not patentably distinct from each other as follows:

Instant Application 10/678,083	Co-pending Application 10/787,120
10. A method for manufacturing a semiconductor device comprising the steps of: processing a first laser beam with a wavelength of visible light or a shorter wavelength than visible light into a long beam at a surface of a semiconductor film or a vicinity thereof; and crystallizing the semiconductor film by irradiating a region of the surface with a second laser beam of a fundamental wave and the long beam at the same time while moving the surface relative to the long beam wherein the first laser beam is a harmonic wave of a solid laser, and wherein the second laser beam is emitted from a continuous wave solid laser and-the second laser beam is absorbed in the semiconductor film which is melted by the long beam.	13. A method of manufacturing a semiconductor device comprising the steps of: forming a non-single crystalline semiconductor film over a substrate, shaping a first laser beam emitted from a first laser oscillator into an elongated beam on a surface to be irradiated wherein the first laser beam has a wavelength not irradiating the non-single crystalline semiconductor film with the elongated beam wherein an irradiation area of the elongated beam has at least a first portion and a second portion, said first portion having a lower energy density than the second portion, wherein a portion of the non-single crystalline semiconductor film irradiated with the elongated beam is melted; irradiating at least said portion of the non-single crystalline semiconductor film with a second laser beam emitted from a second laser oscillator, said second laser beam having a fundamental wave emitted from a solid laser, wherein an irradiation area of the second laser beam has at least a first portion and a second portion, said second portion having a higher energy density than the first portion; forming a crystal grain region while moving the substrate in a first direction relatively to the elongated beam and the second laser beam; moving the substrate in a second direction

	relatively to the elongated beam and the second laser beam, wherein the irradiation of said portion of the non-single crystalline semiconductor film with the second laser beam is performed when said portion is in a molten state due to the irradiation of said first laser beam and the irradiation of the elongated beam and the second laser beam is performed in such a manner that the second portion of the irradiation area of the second laser beam overlaps at least the first portion of the irradiation area of the elongated beam. <i>See also claims 18 and 19.</i>
11. A method for manufacturing a semiconductor device comprising the steps of: processing a first laser beam with a wavelength of visible light or a shorter wavelength than visible light into a long beam at a surface of a semiconductor film or a vicinity thereof; and activating an impurity region formed in the semiconductor film by irradiating a region of the surface with a second laser beam of a fundamental wave and the long beam at the same time while moving the surface relative to the long beam – wherein the first laser beam is a harmonic wave of a solid laser, and wherein the second laser beam is emitted from a continuous wave solid laser and the second laser beam is absorbed in the semiconductor film which is melted by the long beam.	13. A method of manufacturing a semiconductor device comprising the steps of: forming a non-single crystalline semiconductor film over a substrate, shaping a first laser beam emitted from a first laser oscillator into an elongated beam on a surface to be irradiated wherein the first laser beam has a wavelength not irradiating the non-single crystalline semiconductor film with the elongated beam wherein an irradiation area of the elongated beam has at least a first portion and a second portion, said first portion having a lower energy density than the second portion, wherein a portion of the non-single crystalline semiconductor film irradiated with the elongated beam is melted; irradiating at least said portion of the non-single crystalline semiconductor film with a second laser beam emitted from a second laser oscillator, said second laser beam having a fundamental wave emitted from a solid laser, wherein an irradiation area of the second laser beam has at least a first portion and a second portion, said second portion having a higher energy density than the first portion; forming a crystal grain region while moving the substrate in a first direction relatively to the elongated beam and the second laser beam;

	moving the substrate in a second direction relatively to the elongated beam and the second laser beam, wherein the irradiation of said portion of the non-single crystalline semiconductor film with the second laser beam is performed when said portion is in a molten state due to the irradiation of said first laser beam and the irradiation of the elongated beam and the second laser beam is performed in such a manner that the second portion of the irradiation area of the second laser beam overlaps at least the first portion of the irradiation area of the elongated beam. <i>See also claims 18 and 19.</i>
13. A method for manufacturing a semiconductor device according to claim 10, wherein the first laser beam is emitted from a continuous wave solid laser.	23. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser. wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser.
14. A method for manufacturing a semiconductor device according to claim 10, wherein each of the first and second laser beam is emitted from one selected from the group consisting of YAG laser, YVO ₄ laser, YLF laser, YAlO ₃ laser, ruby laser, and alexandrite laser.	15. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is selected from the group consisting of a YAG laser, a YVO ₄ laser, a YLF laser, a YAlO ₃ laser, an alexandrite laser and a Ti: Sapphire laser.
15. A method for manufacturing a semiconductor device according to claim 11, wherein the first laser beam is emitted from a continuous wave solid laser.	23. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser. wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser.
16. A method for manufacturing a semiconductor device according to claim 11, wherein each of the first and second	15. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser

laser beam is emitted from one selected from the group consisting of YAG laser, YVO ₄ laser, YLF laser, YAlO ₃ laser, ruby laser, and alexandrite laser.	oscillator and the second laser oscillator is selected from the group consisting of a YAG laser, a YVO ₄ laser, a YLF laser, a YAlO ₃ laser, an alexandrite laser and a Ti: Sapphire laser.
17. A method for manufacturing a semiconductor device according to claim 12, wherein the first laser beam is emitted from a continuous wave solid laser.	23. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser. wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser.
18. A method for manufacturing a semiconductor device according to claim 12, wherein each of the first and second laser beam is emitted from one selected from the group consisting of YAG laser, YVO ₄ laser, YLF laser, YAlO ₃ laser, ruby laser, and alexandrite laser.	15. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is selected from the group consisting of a YAG laser, a YVO ₄ laser, a YLF laser, a YAlO ₃ laser, an alexandrite laser and a Ti: Sapphire laser.
20. A method for manufacturing a semiconductor device comprising the steps of: processing a first laser beam with a wavelength of visible light or a shorter wavelength than visible light into a long beam at a surface of a semiconductor film or a vicinity thereof; and crystallizing the semiconductor film by irradiating a region of the surface with a second laser beam of a fundamental wave and the long beam while moving the surface relative to the long beam wherein the long beam is overlapped with the second laser beam at the region, wherein the first laser beam is a harmonic wave of a solid laser, and wherein the second laser beam is emitted from a continuous wave solid laser and the second laser beam is absorbed in the semiconductor film which is melted by the long beam.	13. A method of manufacturing a semiconductor device comprising the steps of: forming a non-single crystalline semiconductor film over a substrate, shaping a first laser beam emitted from a first laser oscillator into an elongated beam on a surface to be irradiated wherein the first laser beam has a wavelength not irradiating the non-single crystalline semiconductor film with the elongated beam wherein an irradiation area of the elongated beam has at least a first portion and a second portion, said first portion having a lower energy density than the second portion, wherein a portion of the non-single crystalline semiconductor film irradiated with the elongated beam is melted; irradiating at least said portion of the non-single crystalline semiconductor film with a second laser beam emitted from a second laser oscillator, said second laser beam having a fundamental wave emitted from a solid laser, wherein an irradiation

	area of the second laser beam has at least a first portion and a second portion, said second portion having a higher energy density than the first portion; forming a crystal grain region while moving the substrate in a first direction relatively to the elongated beam and the second laser beam; moving the substrate in a second direction relatively to the elongated beam and the second laser beam, wherein the irradiation of said portion of the non-single crystalline semiconductor film with the second laser beam is performed when said portion is in a molten state due to the irradiation of said first laser beam and the irradiation of the elongated beam and the second laser beam is performed in such a manner that the second portion of the irradiation area of the second laser beam overlaps at least the first portion of the irradiation area of the elongated beam. <i>See also claims 18 and 19.</i>
21. A method for manufacturing a semiconductor device comprising the steps of: processing a first laser beam with a wavelength of visible light or a shorter wavelength than visible light into a long beam at a surface of a semiconductor film or a vicinity thereof; and activating an impurity region formed in the semiconductor film by irradiating a region of the surface with a second laser beam of a fundamental wave and the long beam at the same time while moving the surface relative to the long beam wherein the long beam is overlapped with the second laser beam at the region, wherein the first laser beam is a harmonic wave of a solid laser, and wherein the second laser beam is emitted from a continuous wave_solid laser and the second laser beam is absorbed in the semiconductor film which is melted by	13. A method of manufacturing a semiconductor device comprising the steps of: forming a non-single crystalline semiconductor film over a substrate, shaping a first laser beam emitted from a first laser oscillator into an elongated beam on a surface to be irradiated wherein the first laser beam has a wavelength not irradiating the non-single crystalline semiconductor film with the elongated beam wherein an irradiation area of the elongated beam has at least a first portion and a second portion, said first portion having a lower energy density than the second portion, wherein a portion of the non-single crystalline semiconductor film irradiated with the elongated beam is melted; irradiating at least said portion of the non-single crystalline semiconductor film with a second laser beam emitted from

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the long beam.	a second laser oscillator, said second laser beam having a fundamental wave emitted from a solid laser, wherein an irradiation area of the second laser beam has at least a first portion and a second portion, said second portion having a higher energy density than the first portion; forming a crystal grain region while moving the substrate in a first direction relatively to the elongated beam and the second laser beam; moving the substrate in a second direction relatively to the elongated beam and the second laser beam, wherein the irradiation of said portion of the non-single crystalline semiconductor film with the second laser beam is performed when said portion is in a molten state due to the irradiation of said first laser beam and the irradiation of the elongated beam and the second laser beam is performed in such a manner that the second portion of the irradiation area of the second laser beam overlaps at least the first portion of the irradiation area of the elongated beam. <i>See also claims 18 and 19.</i>
24. A method for manufacturing a semiconductor device according to claim 20, wherein the first laser beam is emitted from a continuous wave solid laser.	23. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser. wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser.
25. A method for manufacturing a semiconductor device according to claim 20, wherein each of the first and second laser beam is emitted from one selected from the group consisting of YAG laser, YVO ₄ laser, YLF laser, YAlO ₃ laser, ruby laser, and alexandrite laser.	15. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is selected from the group consisting of a YAG laser, a YVO ₄ laser, a YLF laser, a YAlO ₃ laser, an alexandrite laser and a Ti: Sapphire laser.
26. A method for manufacturing a semiconductor device according to claim	23. A method of manufacturing a semiconductor device according to claim

21, wherein the first laser beam is emitted from a continuous wave solid laser.	12 or 13, wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser. wherein each of the first laser oscillator and the second laser oscillator is a continuous wave solid laser.
27. A method for manufacturing a semiconductor device according to claim 21, wherein each of the first and second laser beam is emitted from one selected from the group consisting of YAG laser, YVO ₄ laser, YLF laser, YAlO ₃ laser, ruby laser, and alexandrite laser.	15. A method of manufacturing a semiconductor device according to claim 12 or 13, wherein each of the first laser oscillator and the second laser oscillator is selected from the group consisting of a YAG laser, a YVO ₄ laser, a YLF laser, a YAlO ₃ laser, an alexandrite laser and a Ti: Sapphire laser.
29. A method for manufacturing a semiconductor device according to claim 11, wherein the second laser beam is longer than the long beam at the surface.	<i>See claims 13, 18 and 19.</i>
30. A method for manufacturing a semiconductor device according to claim 12, wherein the second laser beam is longer than the long beam at the irradiated surface.	<i>See claims 13, 18 and 19.</i>
31. A method for manufacturing a semiconductor device according to claim 20, wherein the second laser beam is longer than the long beam at the surface.	<i>See claims 13, 18 and 19.</i>
32. A method for manufacturing a semiconductor device according to claim 21, wherein the second laser beam is longer than the long beam at the surface.	<i>See claims 13, 18 and 19.</i>

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 12 and 38 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13, 18 and 19 of copending Application No. 10/787,120 in view of Yamazaki (US 5,514,879).

Re claims 12 and 38, as shown above, the copending application claimed all the claimed limitations except forming an insulating layer for covering a top surface and side

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surface of the semiconductor layer; forming a conductive layer over the semiconductor layer with the insulating layer interposed therebetween and wherein the substrate is a glass substrate.

Yamazaki discloses forming an insulating layer (35) to cover forming an insulating layer for covering a top surface and side surface of the semiconductor layer (33); forming a conductive layer (40) over the semiconductor layer with the insulating layer interposed therebetween and a glass substrate (11) (see Figs. 7A – 8D).

As Yamazaki discloses the insulating layer utilizes to be used as gate dielectric (insulating) layer and the semiconductor layer utilized as source/drain and channel region and the conductive layer utilized to form gate conductor and the glass substrate used as substrate due to its optical property for fabrication of TFTs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to provide the copending application claimed invention with forming an insulating layer for covering a top surface and side surface of the semiconductor layer; forming a conductive layer over the semiconductor layer with the insulating layer interposed therebetween and wherein the substrate is a glass substrate as taught by Yamazaki in order use the insulating layer as gate dielectric (insulating) layer and the semiconductor layer as source/drain and channel region and the conductive layer as gate conductor and the glass substrate used as substrate due to its optical property for fabrication of TFTs.

This is a provisional obviousness-type double patenting rejection.

Conclusion

5. **THIS ACTION IS MADE NON-FINAL.**

Correspondence

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (571) 272-1862. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly D. Nguyen can be reached on (571) 272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brook Kebede/
Primary Examiner, Art Unit 2894

/BK/
April 27, 2009